

What is claimed is:

1. A nucleic acid probe for measuring human gene expression, comprising:  
a nucleotide sequence as set forth in any one of SEQ ID NOs: 13,701- 27,400, the  
complement thereof, or a fragment of said SEQ ID NO: or said complement,  
wherein said probe is a single exon probe that hybridizes under high stringency  
conditions to a nucleic acid molecule expressed in human cells or tissues.
2. A single exon nucleic acid probe according to claim 1, wherein:  
said nucleotide sequence is selected from the exon SEQ ID NOs: set forth in Table  
4, the complement thereof, or a fragment of said SEQ ID NO: or said complement,  
and wherein said probe hybridizes under high stringency conditions to a nucleic  
acid molecule expressed in human brain.
3. A single exon nucleic acid probe according to claim 1, wherein:  
said nucleotide sequence is selected from the exon SEQ ID NOs: set forth in Table  
5, the complement thereof, or a fragment of said SEQ ID NO: or said complement,  
and wherein said probe hybridizes under high stringency conditions to a nucleic  
acid molecule expressed in human heart.
4. A single exon nucleic acid probe according to claim 1, wherein:  
said nucleotide sequence is selected from the exon SEQ ID NOs: set forth in Table  
6, the complement thereof, or a fragment of said SEQ ID NO: or said complement,  
and wherein said probe hybridizes under high stringency conditions to a nucleic  
acid molecule expressed in human liver.
5. A single exon nucleic acid probe according to claim 1, wherein:  
said nucleotide sequence is selected from the exon SEQ ID NOs: set forth in Table  
7, the complement thereof, or a fragment of said SEQ ID NO: or said complement,

and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in human fetal liver.

- 5 6. A single exon nucleic acid probe according to claim 1, wherein:  
said nucleotide sequence is selected from the exon SEQ ID NOs: set forth in Table 8, the complement thereof, or a fragment of said SEQ ID NO: or said complement, and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in human placenta.
- 10 7. A single exon nucleic acid probe according to claim 1, wherein:  
said nucleotide sequence is selected from the exon SEQ ID NOs: set forth in Table 9, the complement thereof, or a fragment of said SEQ ID NO: or said complement, and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in human lung.
- 15 8. A single exon nucleic acid probe according to claim 1, wherein:  
said nucleotide sequence is selected from the exon SEQ ID NOs: set forth in Table 10, the complement thereof, or a fragment of said SEQ ID NO: or said complement, and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in human bone marrow.
- 20 9. A single exon nucleic acid probe according to claim 1, wherein:  
said nucleotide sequence is selected from the exon SEQ ID NOs: set forth in Table 11, the complement thereof, or a fragment of said SEQ ID NO: or said complement, and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in HeLa cells.
- 25 10. The single exon nucleic acid probe of claim 1, wherein said fragment includes at least 20 contiguous nucleotides of said SEQ ID NO: or the complement thereof.

11. The single exon nucleic acid probe of claim 1, wherein said fragment includes at least 25 contiguous nucleotides of said SEQ ID NO: or the complement thereof.
- 5 12. The single exon nucleic acid probe of claim 1, wherein said fragment includes at least 50 contiguous nucleotides of said SEQ ID NO: or the complement thereof.
13. The single exon nucleic acid probe of claim 1, wherein said probe further comprises, contiguous to a first end of said fragment, a first intronic and/or intergenic sequence that is identically contiguous to said fragment in the human genome.
- 10 14. The single exon nucleic acid probe of claim 13, wherein said probe further comprises, contiguous to a second end of said fragment, a second intronic and/or intergenic sequence that is identically contiguous to said fragment in the human genome.
- 15 15. The single exon nucleic acid probe of claim 14, wherein said probe comprises a nucleotide sequence selected from any one of SEQ ID NOs: 1 - 13,700, or the complement thereof.
- 20 16. The single exon nucleic acid probe of claim 15, wherein:  
said probe comprises a nucleotide sequence selected from the probe SEQ ID NOs:  
set forth in Table 4, or the complement thereof,  
25 and wherein said probe hybridizes under high stringency conditions to a nucleic acid molecule expressed in human brain.
17. The single exon nucleic acid probe of claim 15, wherein:

said probe comprises a nucleotide sequence selected from the probe SEQ ID NOs:  
set forth in Table 5, or the complement thereof,  
and wherein said probe hybridizes under high stringency conditions to a nucleic  
acid molecule expressed in human heart.

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18. The single exon nucleic acid probe of claim 15, wherein:  
said probe comprises a nucleotide sequence selected from the probe SEQ ID NOs:  
set forth in Table 6, or the complement thereof,  
and wherein said probe hybridizes under high stringency conditions to a nucleic  
acid molecule expressed in human liver.

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19. The single exon nucleic acid probe of claim 15, wherein:  
said probe comprises a nucleotide sequence selected from the probe SEQ ID NOs:  
set forth in Table 7, or the complement thereof,  
and wherein said probe hybridizes under high stringency conditions to a nucleic  
acid molecule expressed in human fetal liver.

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20. The single exon nucleic acid probe of claim 15, wherein:  
said probe comprises a nucleotide sequence selected from the probe SEQ ID NOs:  
set forth in Table 8, or the complement thereof,  
and wherein said probe hybridizes under high stringency conditions to a nucleic  
acid molecule expressed in human placenta.

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21. The single exon nucleic acid probe of claim 15, wherein said probe comprises a  
nucleotide sequence selected from the probe SEQ ID NOs: set forth in Table 9, or  
the complement thereof,  
and wherein said probe hybridizes under high stringency conditions to a nucleic  
acid molecule expressed in human lung.

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22. The single exon nucleic acid probe of claim 15, wherein:  
said probe comprises a nucleotide sequence selected from the probe SEQ ID NOs:  
set forth in Table 10, or the complement thereof,  
and wherein said probe hybridizes under high stringency conditions to a nucleic  
acid molecule expressed in human bone marrow.
23. The single exon nucleic acid probe of claim 15, wherein:  
said probe comprises a nucleotide sequence selected from the probe SEQ ID NOs:  
set forth in Table 11, the complement thereof, or a fragment of said SEQ ID NO: or  
said complement,  
and wherein said probe hybridizes under high stringency conditions to a nucleic  
acid molecule expressed in HeLa cells.
24. The single exon nucleic acid probe of claim 1, wherein said probe is no more than  
25 kb in length.
25. The single exon nucleic acid probe of claim 1, wherein said probe is no more than  
5 kb in length.
26. The single exon nucleic acid probe of claim 1, wherein said probe lacks prokaryotic  
and bacteriophage vector sequence.
27. The single exon nucleic acid probe of claim 1, wherein said probe lacks  
homopolymeric stretches of A or T.
28. A nucleic acid probe for measuring human gene expression, comprising:  
a nucleotide sequence that encodes, or the complement of which encodes, at least 8  
amino acids of any one of SEQ ID NOs:27,401 - 34,288,

wherein said probe is a single exon probe that hybridizes under high stringency conditions to a nucleic acid molecule expressed in human cells or tissues.

29. A spatially-addressable set of single exon nucleic acid probes for measuring human  
5 gene expression, comprising:  
a plurality of single exon nucleic acid probes according to claim 1,  
wherein each of said plurality of probes is separately and addressably isolatable or  
amplifiable from said plurality.
- 10 30. The spatially-addressable set of single exon nucleic acid probes of claim 29,  
wherein each of said plurality of probes is amplifiable using at least one common  
primer.
31. The spatially-addressable set of single exon nucleic acid probes of claim 29,  
15 wherein said set comprises between 50 - 20,000 single exon nucleic acid probes.
32. The spatially-addressable set of single exon nucleic acid probes of claim 29,  
wherein the average length of the single exon nucleic acid probes is between 50 bp  
and 750 bp.
- 20 33. The spatially-addressable set of single exon nucleic acid probes of claim 29,  
wherein at least 50% of said single exon nucleic acid probes lack prokaryotic and  
bacteriophage vector sequence.
- 25 34. The spatially-addressable set of single exon nucleic acid probes of claim 29,  
wherein at least 50% of said single exon nucleic acid probes lack homopolymeric  
stretches of A or T.

35. The spatially-addressable set of single exon nucleic acid probes of claim 29,  
wherein said probes are addressably disposed upon a substrate.
36. A single exon microarray for measuring human gene expression, comprising:  
5 a spatially-addressable plurality of single exon nucleic acid probes according claim  
1.
37. A single exon microarray for measuring human gene expression, comprising:  
a spatially-addressable plurality of single exon nucleic acid probes according to any  
10 one of claims 2 - 28.
38. The single exon microarray of claim 36, wherein said plurality of single exon  
nucleic acid probes averages at least 50 bp in length.
39. The single exon microarray of claim 36, wherein said plurality of single exon  
15 nucleic acid probes averages at least 75 bp in length.
40. The single exon nucleic acid microarray of claim 36, wherein said single exon  
nucleic acid probes are noncovalently bound to the substrate of said microarray.  
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41. A method of measuring human gene expression, comprising:  
contacting the microarray of claim 36 with a first plurality of detectably labeled  
nucleic acids, said first plurality of nucleic acids being derived from human gene  
transcripts; and then  
25 measuring the label detectably bound to each probe of said microarray,  
said measures of detected label providing a measure of human gene expression.
42. The method of claim 41, further comprising:

contacting said microarray with a second plurality of detectably labeled nucleic acids;

measuring the label detectably bound to each probe of said microarray; and  
comparing said first and second measurements,

5        said comparative measures of detected label providing a measure of human gene expression.

43.    The method of claim 42, wherein said first and second pluralities are  
10        distinguishably labeled and simultaneously contacted to said microarray.

44.    A vector, comprising: the single exon probe of claim 1.

45.    An ORF-encoded peptide, comprising: at least 8 contiguous amino acids of any one  
15        of SEQ ID NOs:27,401 - 34,288 or at least 8 contiguous amino acids of any one of  
SEQ ID NOs:27,401 - 34,288 with conservative amino acid substitutions.

46.    The ORF-encoded peptide of claim 45, wherein said peptide comprises at least 15  
20        contiguous amino acids of any one of SEQ ID NOs:27,401 - 34,288 or at least 15  
contiguous amino acids of any one of SEQ ID NOs:27,401 - 34,288 with  
conservative amino acid substitutions.

47.    An isolated antibody, wherein said antibody binds specifically to a peptide  
according to claim 45.

25    48.    A method of selling and/or licensing single exon probes to a customer desiring to  
measure gene expression, comprising:  
making available for computerized query a database having a plurality of records,  
each record corresponding to a single exon probe according to claim 1,



wherein said database responds to a customer query by returning to the customer at least one record, or an identifier of said record, that satisfies the customer query criteria, the probes to which said records correspond being available for sale and/or licensing.

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49. A method of selling and/or licensing single-exon microarrays to a customer desiring to measure gene expression, comprising:

making available for computerized query a database having a plurality of records, each record corresponding to a microarray according to claim 36,

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wherein said database responds to a customer query by returning to the customer at least one record, or an identifier of said record, that satisfies the customer query criteria, the microarrays to which said records correspond being available for sale and/or licensing.

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50. A method of providing human gene expression data by subscription, comprising: making available for computerized query a database having a plurality of records, each record including data on the expression of a single exon probe according to claim 1,

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wherein said database responds to a query by a customer having a subscription, but not to a query by a customer lacking such subscription, by returning at least one record, or identifier of said at least one record, that satisfies the customer query criteria.

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51. A computer readable storage medium storing instructions that, when executed by a computer, causes the computer to perform the method of any one of claims 48 to 51.

52. A computer system, comprising a processor programmed to perform the method of any one of claims 48 to 51.

53. A computer readable storage medium containing a database having a plurality of records, each record including data on the expression of a single exon probe according to claim 1.